

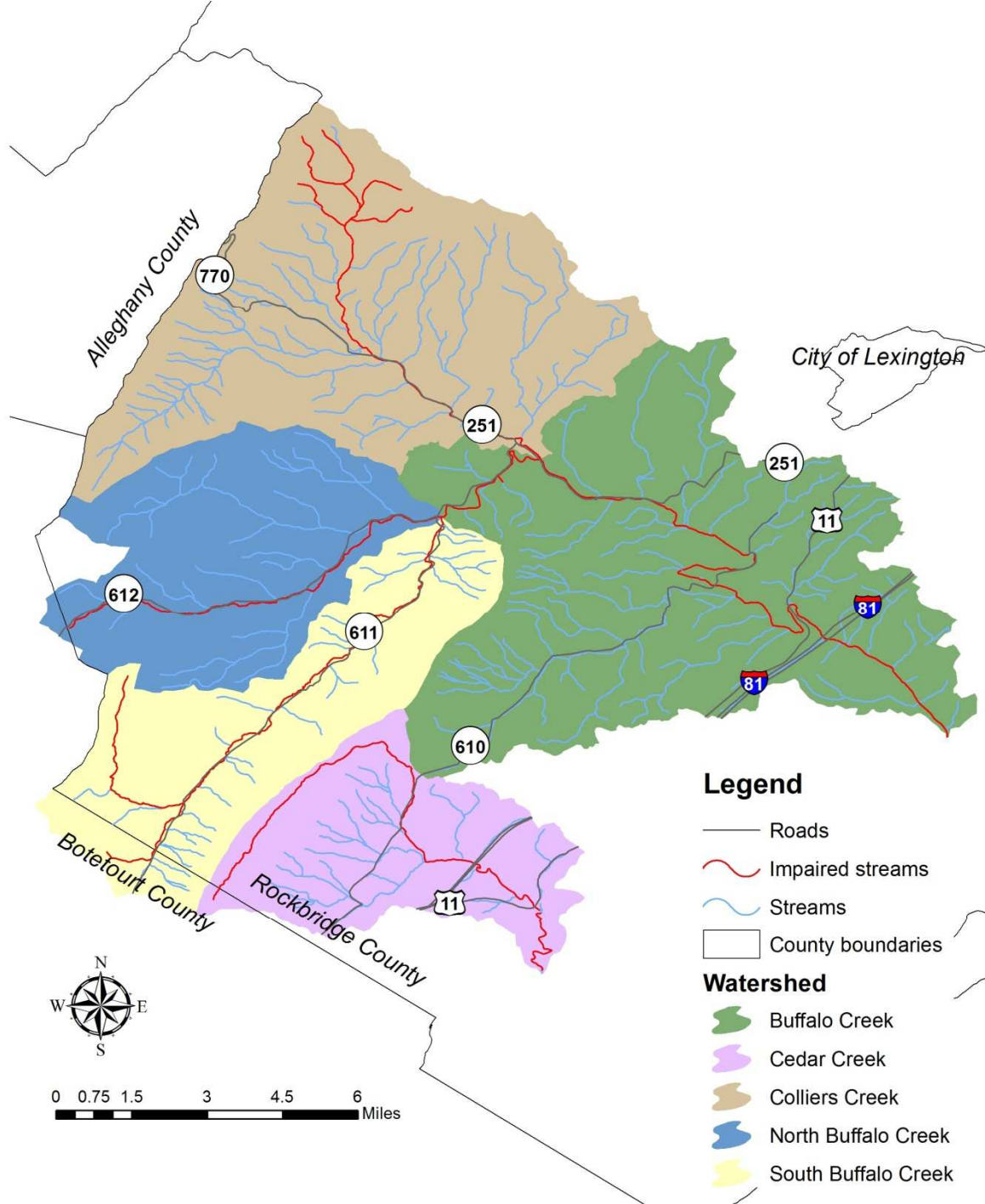
Buffalo, Colliers and Cedar Creek Community Meeting: **AGENDA**

1. Background on Clean Up Plan
 - Nesha McRae, VA Dept. of Environmental Quality
2. Working Group Discussions
 - Agricultural Working Group: Facilitated by Nesha McRae
 - Residential Working Group: Facilitated by Tara Sieber, VA Department of Environmental Quality

A scenic view of a river flowing through a forested area. The river is in the foreground, with some rocks visible in the water. The banks are covered with trees, some of which are bare, suggesting a late autumn or winter setting. In the background, there are mountains under a blue sky with some clouds. The title text is overlaid on the top part of the image.

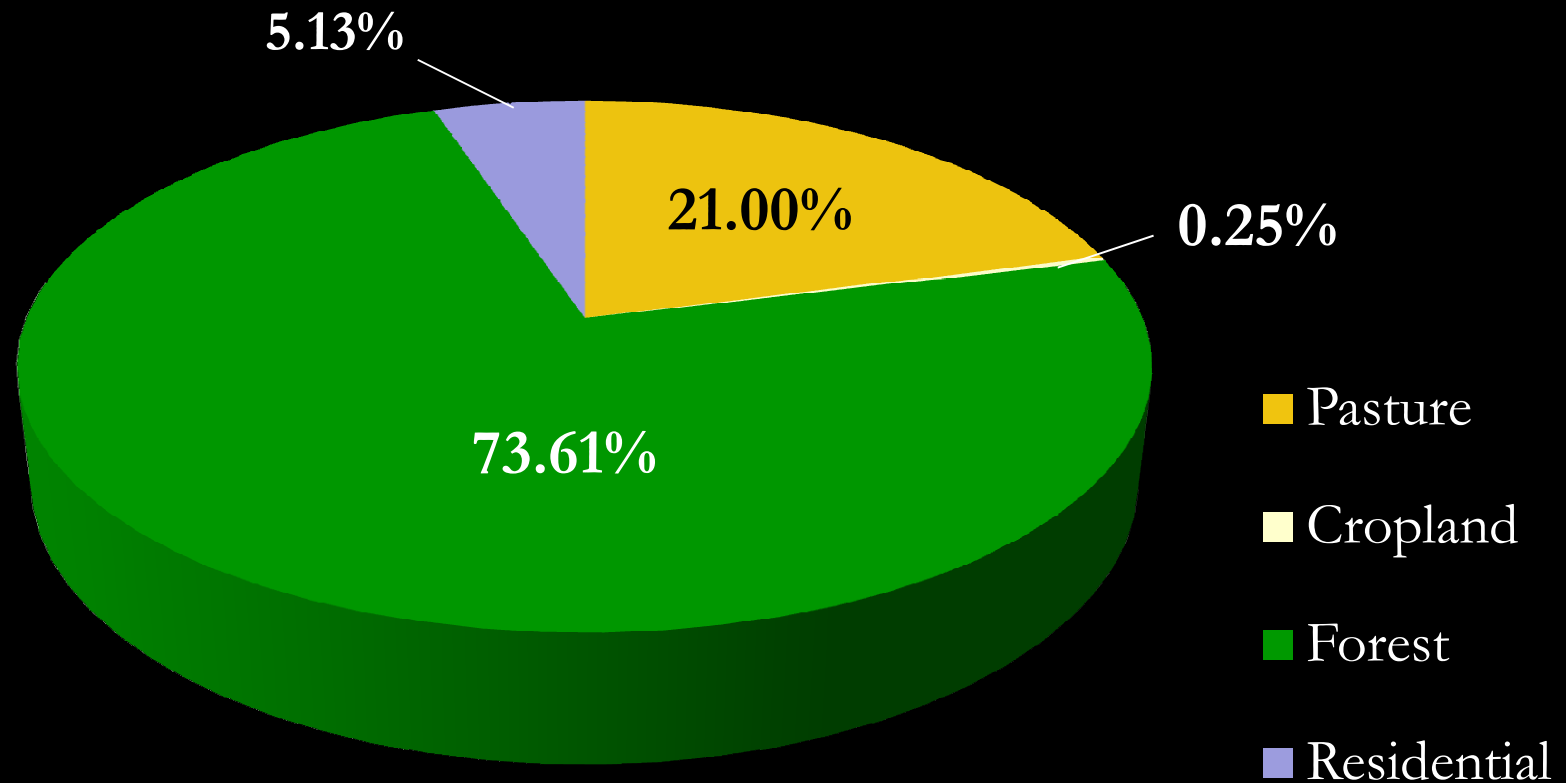
Planning for Clean Water: Buffalo, Cedar and Colliers Creeks

Nesha McRae
Virginia Department of Environmental Quality
May 8, 2014



Land Use in Buffalo, Colliers and Cedar Creeks

79,226 acres total



Why do we need a plan for clean water?

1. Too much *E.coli*

- Human health concern
 - Risk based standard
- Indicator of pathogens in the water (viruses, protozoans, bacteria)
- Impacts on livestock
 - >50% of cattle diseases in mid-Atlantic transmitted through fecal oral pathway



Where is the **bacteria** coming from?

Source	Buffalo Creek	Colliers Creek	NF Buffalo Creek	SF Buffalo Creek	Cedar Creek
Cropland runoff	<1%	<1%	<1%	<1%	<1%
Forest runoff	<1%	<1%	<1%	<1%	<1%
Pasture runoff	20%	16%	26%	9%	9%
Residential runoff	1%	<1%	<1%	<1%	<1%
Livestock in stream	40%	21%	56%	46%	63%
Wildlife in stream	29%	36%	13%	33%	17%
Straight pipes	9%	24%	3%	10%	8%
Point sources	<1%	<1%	<1%	<1%	<1%

Bacteria Reductions Needed for Removal From “Dirty Waters List”

Watershed	% Reduction by Source			
	Livestock in stream	Pasture	Cropland	Straight pipes and failing septic
Buffalo Creek	50%	50%	10%	100%
Colliers Creek	70%	50%	10%	100%
NF Buffalo Creek	35%	35%	10%	100%
SF Buffalo Creek	99%	50%	10%	100%
Cedar Creek	99%	50%	10%	100%

Bacteria Reductions Needed to **Never** Violate the Bacteria WQ Standard

Watershed	% Reduction by Source					
	Livestock in stream	Pasture	Cropland	Straight pipes and failing septic	Residential	Wildlife DD
Buffalo Creek	99%	65%	30%	100%	10%	75%
Colliers Creek	99%	75%	30%	100%	10%	40%
NF Buffalo Creek	75%	50%	30%	100%	10%	0%
SF Buffalo Creek	99%	75%	30%	100%	10%	60%
Cedar Creek	99%	50%	10%	100%	0%	55%

Why else do we need a plan for clean water?

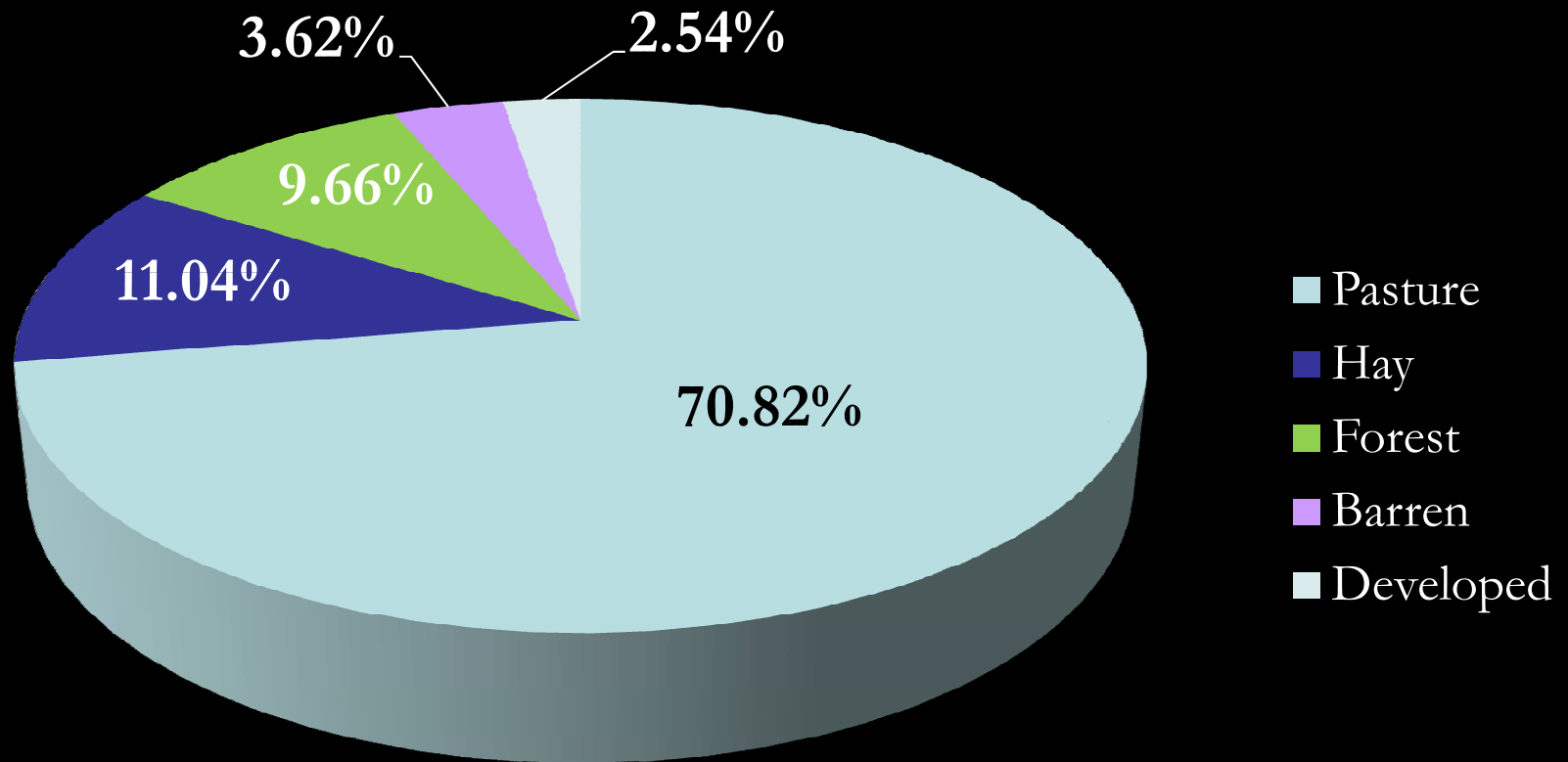
2. Too much sediment in Colliers Creek
 - Impacts to aquatic life



Photo: K.R.I.S.

Where is the sediment coming from?

Sediment Sources in Colliers Creek



Sediment Reductions Needed

Source	Reduction Scenarios (%)	
	Scenario 1	Scenario 2
Pasture	27.3%	33%
Hay	27.3%	0%
Developed	27.3%	10%
Stream channel erosion	27.3%	33%

Picking up where we left off...

- Study of the watersheds completed in 2013
- Identified sources of bacteria and sediment in the watersheds and their contributions
- Created a model to predict how the rivers would respond to different conditions
- Identified reductions needed
- Now we have to figure out how to meet the reductions...

Developing the Plan: Community Involvement

- Importance of **local** input
- Unique solutions
- Opportunities to participate
 - Public meetings
 - Working group meetings
 - Steering committee



What will go into the plan?

- What's already happening
- What else can be done and who can help do it
- How long it will take
- What kind of a difference it will make in water quality
- How we can pay for it
- How we can get the word out

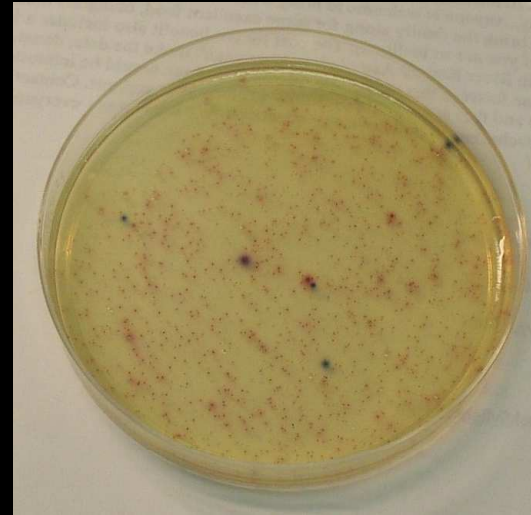


Implementing the plan

- Voluntary participation
 - Will be challenging to reach everyone
 - Importance of buy in during planning
- Take time to build relationships and trust
- Incentive-based
- Pursuing funding options
 - Role of the steering committee?
 - Existing funding available through NRCS and Natural Bridge SWCD

What will be the challenges?

- Paying for the work
- A lot of fencing...
- Finding straight pipes and failing septic systems
- The wildlife issue
- Working with “the government”
- Can't see bacteria



Bacteria in
sample
upstream of
livestock
access point



Bacteria in
sample
downstream
of livestock
access point

The good news...

- About \$800,000 spent on agricultural BMPs in the watershed (\$0.25M by landowners)
- 18 miles of streamside exclusion fence
- Over 2,000 acres rotational grazing systems
- Over 1,500 acres of cover crops
- 10 acres of reforestation of erodible pasture
- 20 acres permanent vegetative cover on cropland and critical areas
- 325 acres nutrient management planning

Next Step : Break Out Sessions

Agricultural



Residential



Learning about the creeks:

What you can contribute as a stakeholder

- General comments
 - Greatest concerns about the creeks?
 - Greatest opportunities with this project?
 - Greatest challenges we will encounter?
- Specific strategies
 - Are there particular management strategies that will work well in the community?
 - Are there strategies that should be avoided?
- Recommended outreach activities
- Potential partner organizations